Peer Review in the Theory Program

Background

- One of the implementing principles in FEAC report *A Restructured Fusion Energy Sciences Program* is scientific excellence. The report states: "All elements of the fusion program should be peer reviewed and held to the highest standards of scientific excellence."

- The FEAC report further recommends: "A peer review process should be used as the primary mechanism for evaluating proposals, for assessing progress and quality of work, and for initiating and terminating facilities, projects, research programs, and groups."

- Specifically with respect to the theory program, the report states: "Increased coordination and flexibility in applied theory and computation, based on scientific goals, should be established at both the OFE level and within and among institutions. Evaluation and implementation structures may need re-alignment."

Implementation of Peer Review in the Theory Program

The procedures outlined here are designed to implement the recommendation in the second bullet above.

<u>Grant Applications</u>

Beginning in FY 2001 all new and renewal applications for three-year grants will be reviewed on a comparative basis. (The process for providing continuation funding for the second and third years of a grant will remain unchanged.) The peer review will be conducted either by a review panel or by mail review process depending on the size and nature of the grant application. This will be according to the normal criteria in 10 CRF Part 605 (scientific and technical merit, strengths, and weakness of the approach, etc.). A panel will normally review large university or industrial theory groups. In addition to the above criteria, the review panel members will be asked whether these groups provide clear evidence of collaborative or multidisciplinary work, just as they are for laboratory groups. In both mail reviews and panel reviews, each reviewer will be asked to review several proposals and will provide comparative rankings. These rankings will be averaged to obtain an overall comparative ranking.

A comparative review process will require a single due date each year. Since grants currently start throughout the fiscal year, it will be necessary to make one-time extensions or reductions in the period of some grants to bring them into phase with the once per year review cycle. Such extensions will be necessary in FY 2001, FY 2002, and FY2003 until all current grants are in phase with the annual review cycle. In future years, OFES would maintain the cycle by having uniform start dates for new and renewal grants.

National Laboratory Research

National laboratory theory groups will also be required to submit detailed, peer-reviewable proposals every three-four years. The review of a laboratory proposal could be carried out by a panel, an anonymous mail review, or a combination of both. In addition to the usual criteria in 10 CRF Part 605 (scientific and technical merit, strengths, and weakness of the approach, etc.), laboratory groups will also be rated on the synergy of the group and the quality of the group's management. With respect to synergy, the reviewers will be asked whether there is clear evidence of collaborative work and whether the group addresses difficult problems worthy of multidisciplinary effort. With respect to management, the reviewers will be asked to assess the scientific leadership of the group and the processes the group's management uses to evaluate the relevance and scientific impact of the group's work.

Balance Between National Laboratories and Other Institutions

OFES will address the program balance between national laboratories, universities, and industry annually as part of the annual budget process. In addition, an outside review (possibly conducted by FESAC) will be carried out every 3-5 years to assess the scientific quality and programmatic relevance of the theory program. A part of this review will be an examination of the balance between university, industry, and national laboratory theory efforts.

Further Issues

Some work in the theory program involves multi-institutional teams. These teams may be either formal teams that are set up in response to a specific solicitation or OFES request or informal teams that are self-organized. Formal teams will normally receive funding in response to a team proposal, and renewal reviews will normally be separate from the reviews discussed above. For work on informal teams, individuals and groups will normally include their part of the work in their separate proposals, although information on overall team progress and plans should be included for reference.